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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,816	08/10/2005	Robert Denk	LLP141WOUS	5934
7590	04/06/2006		EXAMINER	
Thomas G Eschweiler Eschweiler & Associates National City Bank Building 629 Euclid Avenue Suite 1210 Cleveland, OH 44114			WENDELL, ANDREW	
			ART UNIT	PAPER NUMBER
			2618	
DATE MAILED: 04/06/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/508,816	DENK ET AL.	
	Examiner Andrew Wendell	Art Unit 2618	
<i>-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</i>			
<b>Period for Reply</b>			
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.			
<ul style="list-style-type: none"> <li>- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.</li> <li>- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.</li> <li>- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).</li> </ul> <p>Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).</p>			
<b>Status</b>			
<p>1)<input type="checkbox"/> Responsive to communication(s) filed on <u>10 August 2005</u>.</p> <p>2a)<input type="checkbox"/> This action is <b>FINAL</b>.      2b)<input checked="" type="checkbox"/> This action is non-final.</p> <p>3)<input type="checkbox"/> Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i>, 1935 C.D. 11, 453 O.G. 213.</p>			
<b>Disposition of Claims</b>			
<p>4)<input checked="" type="checkbox"/> Claim(s) <u>1-21</u> is/are pending in the application.</p> <p>4a) Of the above claim(s) _____ is/are withdrawn from consideration.</p> <p>5)<input type="checkbox"/> Claim(s) _____ is/are allowed.</p> <p>6)<input checked="" type="checkbox"/> Claim(s) <u>1-21</u> is/are rejected.</p> <p>7)<input type="checkbox"/> Claim(s) _____ is/are objected to.</p> <p>8)<input type="checkbox"/> Claim(s) _____ are subject to restriction and/or election requirement.</p>			
<b>Application Papers</b>			
<p>9)<input type="checkbox"/> The specification is objected to by the Examiner.</p> <p>10)<input checked="" type="checkbox"/> The drawing(s) filed on _____ is/are: a)<input type="checkbox"/> accepted or b)<input checked="" type="checkbox"/> objected to by the Examiner.</p> <p>Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).</p> <p>Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).</p> <p>11)<input type="checkbox"/> The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.</p>			
<b>Priority under 35 U.S.C. § 119</b>			
<p>12)<input checked="" type="checkbox"/> Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).</p> <p>a)<input checked="" type="checkbox"/> All    b)<input type="checkbox"/> Some * c)<input type="checkbox"/> None of:</p> <p>1.<input checked="" type="checkbox"/> Certified copies of the priority documents have been received.</p> <p>2.<input type="checkbox"/> Certified copies of the priority documents have been received in Application No. _____.</p> <p>3.<input type="checkbox"/> Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).</p> <p>* See the attached detailed Office action for a list of the certified copies not received.</p>			
<b>Attachment(s)</b>			
<p>1)<input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3)<input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.</p>		<p>4)<input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.</p> <p>5)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6)<input type="checkbox"/> Other: _____.</p>	

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the fractional sampling rate converter unit must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

2. Claim 21 is objected to because of the following informalities: "UMTS or GSM" are not spelled out. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 9 recites the limitation "the time duration" and "the conversion ratio" in lines 19 and 20 of the claim. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4-6, and 8-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamauchi et al. (US Pat Appl# 2004/0152438) in view of Hirata (US Pat# 5,920,557).

Regarding claim 1, Yamauchi et al. timing control device teaches a correction unit 35 (Fig. 1) configured to produce an output data signal 33t based on a received

correction signal 35r (Fig. 1), a counter unit 36 (Fig. 1) electrically connected to the sequence control unit and configured to use the working clock signal from the sequence control unit 10 and 20 or 40 (Fig. 1, signal 20t, 31t, and 40t) to generate an internal actual transmission time signal, and a control device 51 (Fig. 1) configured to compare the internal actual transmission time signal 36t (Fig. 1) with an external nominal transmission time signal 45t (Fig. 1) to produce the correction signal 35r (Fig. 1), and further configured to transmit the correction signal 35r (Fig. 1) to the correction unit 35 (Fig. 1) in order to correct the actual transmission time associated with the output data signal (Sections 0068-0079). Yamauchi et al. fails to teach a sequence control unit connected downstream from the correction unit.

Hirata's synchronizing circuit teaches a correction unit B configured to produce an output data signal based on a received correction signal, a sequence control 9 (Fig. 2) unit connected downstream from the correction unit B (Fig. 2) and configured to produce a working clock signal, a counter unit 5 (Fig. 2) electrically connected to the sequence control unit 9 (Fig. 2) and a control device A (Fig. 2) configured to compare the internal actual transmission time signal with an external nominal transmission time signal to produce the correction signal, and further configured to transmit the correction signal to the correction unit in order to correct the actual transmission time associated with the output data signal (Col. 3 lines 6-27).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a sequence control unit connected downstream from the correction unit as taught by Hirata into

Yamauchi et al. timing control device in order to reduce frequency interference and providing effective communication (Col. 1 lines 48-54).

Regarding claim 2, the combination including Hirata teaches wherein the control device has comprises a comparator unit 4 (Fig. 2) configured to compare the actual transmission time signal with the nominal transmission time signal, and produce a difference signal from a discrepancy between two transmission times associated with the actual and nominal transmission time signals (Col. 3 lines 8-17).

Regarding claim 4, the combination including Hirata teaches wherein the control device comprises a time control unit 1 (fig. 2) connected upstream of the comparator unit 4 (Fig. 2) and configured to transmit the external nominal transmission time signal to the comparator unit.

Regarding claim 5, the combination including Yamauchi et al. teaches wherein the correction unit comprises a fractional sampling rate converter unit with a variable conversion ratio (Sections 0068-0093).

Regarding claim 6, the combination including Yamauchi et al. teaches a signal processing unit 51 (Fig. 1) for configured to produce an input data signal connected downstream from the counter unit 36 (Fig. 1) and from the sequence control unit 10 and 20 or 40 (Fig. 1, signal 20t, 31t, and 40t), and connected upstream of the sampling rate converter unit 35 (Fig. 1).

Regarding claim 8, the combination including Yamauchi et al. teaches wherein the transmitting/receiving station comprises a mobile station which supports one of the standards UMTS or GSM (Sections 0001 and 0005).

Regarding claim 9, Yamauchi et al. teaches producing an internal actual transmission time signal 10 and 20 or 40 (Fig. 1, signal 20t, 31t, and 40t) in the transmitting/receiving unit (mobile station), containing information about an actual transmission time, comparing the internal actual transmission time signal with an external nominal transmission time signal 45t (Fig. 1) which is received at the transmitting/receiving unit 45 (Fig. 1) and which contains information about a nominal transmission time, producing a difference signal 50t (Fig. 1) in the transmitting/receiving unit, which contains information about a discrepancy between the two transmission times associated with the actual 36t (Fig. 1) and nominal transmission time signals 45t (Fig. 1), and correcting 35 (Fig. 1 and 33t of figure 1) the actual transmission time is in the transmitting/receiving unit such that the discrepancy between the two transmission times, contained in the difference signal, is minimized, wherein the correction is carried out independently of a defined clock period 36 and 34t(Fig. 1) of the transmitting/receiving unit, and wherein a time period for the correction is set variably therein, and wherein the time duration of the correction is set by a value of the conversion ratio of a fractional sampling of an input data signal, and of a time duration for which this conversion ratio is activated (Sections 0068-0093). Yamauchi et al. fails to clearly teach wherein the correction is carried out independently of a defined clock period of the transmitting/receiving unit.

Hirata teaches producing an internal actual transmission time signal in the transmitting/receiving unit, containing information about an actual transmission time (Col.3 lines 8-12), comparing 4 (Fig. 2) the internal actual transmission time signal with

an external nominal transmission time signal which is received at the transmitting/receiving unit and which contains information about a nominal transmission time (Col. 3 lines 8-13), producing a difference signal in the transmitting/receiving unit, which contains information about a discrepancy between the two transmission times associated with the actual and nominal transmission time signals, and correcting B (Fig. 2) the actual transmission time is in the transmitting/receiving unit such that the discrepancy between the two transmission times, contained in the difference signal, is minimized, wherein the correction is carried out independently of a defined clock 9 (Fig. 2) period of the transmitting/receiving unit, and wherein a time period for the correction is set variably therein, and wherein the time duration of the correction is set by a value of the conversion ratio of a fractional sampling of an input data signal, and of a time duration for which this conversion ratio is activated (Col. 3 lines 6-Col. 5 line 24).

Regarding claim 10, the combination including Yamauchi et al. teaches wherein the discrepancy between the transmission times is minimized such that the input data signal is compressed or extended in time (Sections 0068-0093).

Regarding claim 11, the combination including Yamauchi et al. teaches wherein the input data signal is compressed or extended in time by reducing or increasing the conversion ratio of the fractional sampling performed on the input data signal (Sections 0068-0093).

Regarding claim 12, the combination including Yamauchi et al. teaches wherein correcting the actual transmission time comprises applying a correction signal to a fractional sampling rate converter unit to change the conversion ratio associated

therewith such that the conversion ratio is set either to a value which is predetermined and fixed for a steady-state system, or to a value which corresponds to the extension or compression of the input data signal (Sections 0068-0093).

Regarding claim 13, the combination including Yamauchi et al. teaches wherein the correction signal contains, as information, a value to which the conversion ratio is changed, a time period for which the changed conversion ratio is used, and a time at which the changed conversion ratio is activated (Sections 0068-0093).

Regarding claim 14, the combination including Yamauchi et al. teaches deactivating the correction signal if the time discrepancy is less than a threshold value, and setting the conversion ratio to a value defined for the steady state (Sections 0068-0093).

Regarding claim 15, the combination including Yamauchi et al. teaches wherein the input data signal is compressed or extended in time such that no information is removed from or added to the input data signal (Sections 0068-0093).

Regarding claim 16, the combination including Yamauchi et al. teaches wherein the actual transmission time is corrected over various clock domains of the transmitting/receiving unit, which have different or identical clock durations, and the external nominal transmission time signal is generated in a clock domain which is different to the clock domain which is clocked by the working clock, and which is not synchronous therewith (Sections 0068-0093).

Regarding claim 17, the combination including Yamauchi et al. teaches a control signal by means of which the working clock in the transmitting/receiving unit is controlled (Fig. 1).

Regarding claim 18, the combination including Yamauchi et al. teaches counting edges of a working clock signal in order to determine the actual transmission time (Sections 0001 and 0005, used in CDMA, TDMA, or FDMA).

Regarding claim 19, the combination including Yamauchi et al. teaches wherein the actual transmission time signal is produced based on the determined actual transmission time (Sections 0068-0093).

Regarding claim 20, the combination including Yamauchi et al. teaches resetting periodically (could be any amount of time) the counting when the transmitting/receiving unit is in the steady state, with a period duration of the nominal transmission time signal (Sections 0068-0093).

Regarding claim 21, the combination including Yamauchi et al. teaches wherein the transmitting/receiving unit comprises a mobile station, and supports a UMTS or GSM mobile radio standard (Sections 0001 and 0005).

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamauchi et al. (US Pat Appl# 2004/0152438) in view of Hirata (US Pat# 5,920,557) as applied to claims 1-2 above, and further in view of Kada et al. (US Pat# 6,687,321).

Regarding claim 3, Yamauchi et al. timing control device in view of Hirata's synchronizing circuit teaches the limitations in claims 1-2. Both Hirata and Yamauchi et al. fail to teach a control unit connected downstream from the comparator unit.

Kada et al. circuit teaches wherein the control device comprises a control unit 24 (Fig. 1) connected downstream from the comparator unit 23 (Fig. 1) and configured to use the difference signal generated by the comparator unit from the comparison of the actual transmission time signal with the nominal transmission time signal, to produce the correction signal (Col. 4 lines 23-28).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a control unit connected downstream from the comparator unit as taught by Kada et al. into a sequence control unit connected downstream from the correction unit as taught by Yamauchi et al. in view of Hirata timing control device in order to improve the accuracy of communication (Col. 2 lines 47-63).

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamauchi et al. (US Pat Appl# 2004/0152438) in view of Hirata (US Pat# 5,920,557) as applied to claim 1 above, and further in view of Partyka (US Pat Appl# 2003/0174757).

Regarding claim 7, Yamauchi et al. timing control device in view of Hirata's synchronizing circuit teaches the limitations in claim 1. Both Hirata and Yamauchi et al. fail to teach a D/A converter.

Partyka's circuit teaches a D/A converter (has to be some D/A converter since there are two A/D converters 122 and 124 of Fig. 2) configured to produce an analog transmission signal as a function of the output data signal and of a sampling clock signal from a sampling clock source (Sections 0007-0013).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a D/A converter as taught by Partyka into a sequence control unit connected downstream from the correction unit as taught by Yamauchi et al. in view of Hirata timing control device in order to converse battery power and maintain synchronization with communication devices (Sections 0006 and 0007).

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kuramatsu et al. discloses a time correction system for radio selective calling receiver. Scott discloses timing adjustment control for efficient time division duplex communication. Morita et al. discloses synchronization method of multisystem control apparatus. Scott discloses timing adjustment control for efficient time division duplex communication.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Wendell whose telephone number is 571-272-0557. The examiner can normally be reached on 7:30-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Andrew Wendell*  
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3/31/2006

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